

CLAIMS

1. Voltage processing unit comprising an integrated charge pump for multiplying a voltage applied to an input of said integrated charge pump by a predetermined factor, characterized by an external voltage doubling circuit for
5 amplifying an available voltage and for applying said amplified voltage to said input of said integrated charge pump.
2. Voltage processing unit according to claim 1, wherein said voltage doubling circuit comprises control means controlling said voltage doubling
10 circuit, which control means are controlled by signals provided by said integrated charge pump.
3. Voltage processing unit according to claim 1 or 2, wherein said voltage doubling circuit comprises
15 - a capacitor, of which capacitor a first connection is connected to said input of said integrated charge pump;
- first switching means for connecting a voltage source to said input of said integrated charge pump when said first switching means are switched on;
- second switching means for connecting a second connection of said capacitor either
20 to ground or to a voltage source; and
- control means for providing control signals which alternately switch on the one hand said first switching means on and said second switching means to ground and on the other hand said first switching means off and said second switching means to a voltage source.

4. Voltage processing unit according to claim 3, wherein said control means comprise a counter for switching said first switching means on and said second switching means to ground each time after having received a predetermined number of signals from said integrated charge pump in a startup phase, and a trigger
5 circuit for switching said first switching means on and said second switching means to ground with each signal received from said integrated charge pump in a subsequent regulation phase.

5. Voltage processing unit according to claim 3 or 4, wherein
10 said first switching means and said second switching means are realized with PMOS transistors.

6. Voltage processing unit according to one of the preceding claims, wherein said integrated charge pump is an integrated Dickson charge pump.
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7. Method for providing an amplified voltage, said method comprising amplifying an available voltage by means of a voltage doubling circuit and multiplying said amplified voltage by a predetermined factor by means of an integrated charge pump.
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